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EXAMINER	
RILEY, SHAWN	

ART UNIT	PAPER NUMBER
2838	

DATE MAILED: 04/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/764,823	FARKAS ET AL.	
	Examiner	Art Unit	
	Shawn Riley	2838	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 March 2006 amendment and remarks*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-50* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-50* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *20 March 2006* is/are: a)☒ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to because figure(s) 1-4 fail(s) to have the label prior art. Correction is required.

Claim Rejections - 35 U.S.C. § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 2, 9-12, 14, 21-24, 26, 33-37, 39-43 and 45-50 are rejected under 35 U.S.C. §102(b) as being fully anticipated by Nork et al. (U.S. Patent 6,411,531). Nork et al. shows,[1] (in, e.g., the(ir) figures and corresponding disclosure)

As to claim 1;

> A charge pump circuit comprising: charge pumping capacitance (see, e.g., figure 3A 8/9); switches (S1-S4) that vary voltage across the pumping capacitance to provide a pumped output voltage from an input voltage; variable resistance (38)

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1 Note claims will be addressed individually and the material in parentheses are the examiner's annotated comments. Further unless needed for clarity reasons, recited limitation(s), will be annotated only upon their first occurrence. Annotated claims begin with the phrase "As to claim". Claims that are not annotated are seen as having already had the invention(s) addressed previously in an annotated claim. Bolded words/phrases indicate rejected material based 112 paragraph rejections. Underlined

that limits noise generating current spikes through the charge pumping capacitance during switching transistions (see, e.g., column 4 lines 32-36) and control (34/32/31A/31B) that varies the variable resistance with varied operating point (see, e.g., column 3 line 51- column 6 line 45).

As to claim 2;

A charge pump as claimed in claim 1 wherein the variable resistance is coupled in series with the pumping capacitance and input voltage (through 38/S3/8/S1).

As to claim 9;

A charge pump as claimed in claim 1 wherein the control comprises a comparator (34).

As to claim 10;

A charge pump as claimed in claim 1 wherein the control comprises an amplifier (34).

As to claim 11;

A charge pump as claimed in claim 1 wherein the control comprises a shunt reference (32) device.

12. A controller comprising: charge pumping capacitance; switches that vary voltage across the pumping capacitance to provide a pumped output voltage from an input voltage; variable resistance that limits noise generating current spikes through the charge pumping capacitance during switch transistions; and control that varies the variable resistance with varied operating point.
14. A controller as claimed in claim 12 wherein the variable resistance is coupled

in series with the pumping capacitance and input voltage.
21. A controller as claimed in claim 12 wherein the control comprises a comparator.
22. A controller as claimed in claim 12 wherein the control comprises an amplifier.
23. A controller as claimed in claim 12 wherein the control comprises a shunt reference device.
24. A DC/DC converter comprising: controlled switches; and a controller that controls the controlled switches, the controller comprising: charge pumping capacitance; switches that vary voltage across the pumping capacitance to provide a pumped output voltage to the controller from an input voltage; variable resistance that limits noise generating current spikes through the charge pumping capacitance during switch transistions; and control that varies the variable resistance with varied operating point.
26. A DC/DC converter as claimed in claim 24 wherein the variable resistance is coupled in series with the pumping capacitance and input voltage.
33. A DC/DC converter as claimed in claim 24 wherein the control comprises a comparator.
34. A DC/DC converter as claimed in claim 24 wherein the control comprises an amplifier.
35. A DC/DC converter as claimed in claim 24 wherein the control comprises an shunt reference device.

Note: For method claims (claims 36-50), note that under MPEP 2112.02, the principles of inherency, if a prior art device, in its normal and usual operation, would necessarily perform the method claimed, then the method claimed will be considered to be anticipated by the prior art device. When the prior art device is the same as a device described in the specification for carrying out the claimed method, it can be assumed the device will inherently perform the claimed process. In re King, 801 F.2d 1324, 231 USPQ 136 (Fed. Cir. 1986). Therefore the previous rejections based on the apparatus will not be repeated.

36. A method of charge pumping comprising: varying voltage across a pumping capacitance to provide a pumped output voltage from an input voltage; and varying variable resistance in circuit with the pumping capacitance with varied operating point to limit noise generating current spikes through the pumping capacitance during switch transitions.

37. A method as claimed in 36 wherein the variable resistance is coupled in series with the pumping capacitance and input voltage.
39. A method as claimed in 36 wherein the variable resistance is varied in response to a comparator.
40. A method as claimed in 36 wherein the variable resistance is varied in response to an amplifier.
41. A method as claimed in 36 wherein the variable resistance is varied in response to a shunt reference device.
42. A method of converting DC voltage to DC voltage comprising: varying voltage across a pumping capacitance to provide a pumped output voltage from an input voltage; varying variable resistance in circuit with the pumping capacitance with varied operating point to limit noise generating current spikes through the pumping capacitance during switch transitions; applying the output voltage to a controller; and controlling converter switches from the controller.
43. A method as claimed in 42 wherein the variable resistance is coupled in series with the pumping capacitance and input voltage.
45. A method as claimed in 42 wherein the variable resistance is varied in response to a comparator.
46. A method as claimed in 42 wherein the variable resistance is varied in response to an amplifier.
47. A method as claimed in 42 wherein the variable resistance is varied in response to a shunt reference device.
48. A charge pump comprising: means for varying voltage across a pumping capacitance to provide a pumped output voltage from an input voltage; and means for varying variable resistance in circuit with the pumping capacitance with varied operating point to limit noise generating current spikes through the pumping capacitance during switch transitions.
49. A controller comprising: means for varying voltage across a pumping capacitance to provide a pumped output voltage from an input voltage; and means for varying variable resistance in circuit with the pumping capacitance with varied operating point to limit noise generating current spikes through the pumping capacitance during switch transitions.
50. A DC/DC converter comprising: means for varying voltage across a pumping capacitance to provide a pumped output voltage from an input voltage; means for varying variable resistance in circuit with the pumping capacitance with varied operating point to limit noise generating current spikes through the pumping capacitance during switch transitions; means for applying the output voltage to a controller; and means for controlling converter switches from the control.

Claim Rejections - 35 U.S.C. § 103

3. The following is a quotation of 35 U.S.C. § 103 which forms the basis for all obviousness rejections set forth in this Office action:

> A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.
>
> Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

4. Claims 3, 5-7, 15, and 17-19, 27, 29-31 are rejected under 35 U.S.C. § 103 as being unpatentable over Nork et al. (U.S. Patent 6,411,531) in view of Wada (U.S. Patent 6,403,943). The Nork et al. reference discloses the limitations of the invention as claimed as described above. However, Nork et al. does not show a switch in parallel with a resistance as an equivalent to a variable resistor. Wada et al shows (see Figure 1) a switch in parallel with a resistance as an equivalent to a variable resistor. It would have been obvious at the time the invention was made to utilize a switch in parallel with a resistance as an equivalent to a variable resistor of Wada et al into the circuit of Nork et al. for the reason of well know electrical equivalents to a single variable resistor.

As to claim 5;

A charge pump as claimed in claim 3 wherein the control comprises a comparator (34).

As to claim 6;

A charge pump as claimed in claim 3 wherein the control comprises an amplifier (34).

As to claim 7;

A charge pump as claimed in claim 3 wherein the control comprises a shunt reference device (32).

Claims 4, 8, 16, 20, 28, 32 and method claim 38, 44 are rejected under 35 U.S.C. § 103 as being unpatentable over Nork et al. (U.S. Patent 6,411,531) in view of Wada (U.S. Patent 6,403,943). The Nork et al. and the Wada et al. reference discloses the limitations of the invention as claimed as described above. However, the Wada et al. do not show the switch in parallel with a resistance as an FET. Official notice is taken that switches are interchangeably, e.g., bi-polar or FET, depending on the input control signal to the switch which is a designed to utilize, e.g., a current input control signal for a bi-polar and a voltage input control signal for a FET.

5. Claims 13, 25 are rejected under 35 U.S.C. § 103 as being unpatentable over Nork et al. (U.S. Patent 6,411,531). The Nork et al. reference discloses the limitations of the invention as claimed as described above. However, Nork et al. do not show a charge pump internal to the controller integrated circuit as well as an external charge pump but Nork et al. do show multiple charge pumps. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to make integral the control and charge pump for the controller, since it has been held that forming in one piece an article which has formerly been formed in two pieces and put together involves only routing skill in the art. ***Howard v. Detroit Stove Works***, 150 U.S. 164 (1893).

6. No claims are allowable over the prior art of record.

1. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Conclusion

Any inquiry from other than the applicant/attorney of record concerning this communication or earlier communications from the Examiner should be directed to the Patent Electronic Business Center (EBC) at 1.866.217.9197. Any inquiry from a member of the press concerning this communication or earlier communications from the Examiner or the application should be directed to the Office of Public Affairs at 703.305.8341. Any inquiry from the applicant or an attorney of record concerning this communication or earlier communications from the Examiner should be directed to Examiner Riley whose telephone number is 571.272.2083. The Examiner can normally be reached Monday through Thursday from 7:30-6:00 p.m. Eastern Standard Time. The Examiner's Supervisor is Mike Sherry who can be reached at 571.272.2084. Any inquiry about a case's location, retrieval of a case, or receipt of an amendment into a case or information regarding sent correspondence to a case **should be directed to 2800's Customer Service Center** at 571.272.2815. Any papers to be sent by fax MUST BE sent to fax number **571-273-8300**. Any inquiry of a general nature of this application should be **directed to the Group receptionist** whose telephone number is 571.272.2800. Status information of cases may be found at http://pair-direct.uspto.gov wherein unpublished application information is found through private PAIR and published application information is found through public PAIR. Further help on using the PAIR system is available at 1.866.217.9197 (Electronic Business Center).

April 06

S.R

Shawn Riley

Primary Examiner